

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:  
Bryan Carson  
Scott Moore

Serial No.: Not Assigned

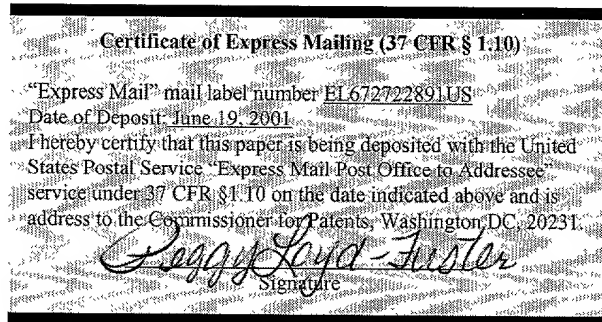
Filed: Concurrently Herewith (June 19, 2001)

For: **SEMICONDUCTOR DIE DE-PROCESSING  
USING A DIE HOLDER AND CHEMICAL  
MECHANICAL POLISHING**

§  
§ Group Art Unit: Not Assigned  
§  
§ Examiner: Not Assigned  
§  
§ Atty. Docket: 98-1111.01  
§  
§ Paper No. \*  
§  
§

Box Patent Application  
Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:



**PRELIMINARY AMENDMENT**

Prior to examining the above-captioned application, please amend the application as indicated below.

**In the Drawings**

An amended FIG. 2 is submitted herewith for the Examiner's approval. Original FIG. 2 inadvertently comprises two elements numbered "32," including a hole through block 26, and a ring around shaft 30. A copy of original sheet 1 including FIG. 2 with the proposed changes is red is included herewith, along with a clean copy of sheet 1 including the corrections. FIG. 2 as amended will be submitted to the Official Draftsperson upon approval by the Examiner.

## In the Specification

Please replace paragraph 20, which begins on page 4 and ends on page 5, with the following rewritten paragraph.

-- A potting jig 24 such as that depicted in FIG. 2 may aid in aligning and securing the die 14 to the holder 10. The potting jig 24 comprises a generally circular or square block 26, for example manufactured from steel, having a recess 28 therein, a shaft 30, and a hole 32 in the block 26 for receiving the shaft 30. The shaft has a ring 33 affixed thereto, and a spring 34 is placed in recess 28 between the block 26 and the ring 33 such that the spring 34 urges the shaft 30 toward the die 14. During use, the die 14 and holder 10 are placed on the optical flat 20 then the jig 24 is placed on the holder 10. As the holder depicted is held in position by gravity it must be of sufficient mass to maintain the position of the holder against the optical flat. The shaft 30 applies downward pressure to the die 14 and holds the die in position. The die can be released from contact with the shaft by lifting on the end of the shaft which protrudes from the block as depicted in FIG. 2. The die can be manually positioned through an access hole in the side of the mount so that the die is generally aligned within the opening in the holder. A syringe can be used to dispense the adhesive 22 (or potting material) around the perimeter of the die to fill the space between the die 14 and the holder 10. --

## In the Claims

Please cancel claims 1-20 as being elected and prosecuted in the parent case. Please rewrite the claims to the form below. Claims 21 and 26 have been amended and claims 27-36 are newly added.

22. (amended) The apparatus of claim 21 in combination with a semiconductor device having a generally planar surface, wherein said holder further comprises a generally flat surface and wherein said planar surface of said semiconductor device and said generally flat surface of said holder contact said generally planar surface of said alignment fixture.

26. (amended) The apparatus of claim 22 further comprising a potting jig comprising:

a block contacting said holder and having a hole and a recess therein;

a shaft received by said hole in said block; and

a spring received by said recess adapted to urge said shaft toward said semiconductor device and to hold said semiconductor device in alignment against said alignment fixture.

27. An apparatus for de-processing a semiconductor wafer section, comprising:
- a wafer section holder having a substantially flat surface and an opening therein, said opening adapted to receive a semiconductor device;
  - an alignment fixture having a substantially flat surface adapted to align said substantially flat surface of said holder with a substantially flat surface of a semiconductor wafer section; and
  - a potting jig adapted to urge said substantially flat surface of said holder and a substantially flat surface of a semiconductor wafer section against said substantially flat surface of said alignment fixture.
28. The apparatus of claim 27 wherein said potting jig further comprises:
- a block having a hole therethrough;
  - a shaft having a first end and a second end, said shaft received by said hole in said block;
- and
- a spring adapted to urge said first end of said shaft away from said block and toward said alignment fixture.
29. The apparatus of claim 28 further comprising a ring affixed to said shaft and contacting said spring, wherein said spring is adapted to urge said ring and said first end of said shaft away from said block and toward said alignment fixture.
30. The apparatus of claim 29 in combination with a semiconductor wafer section, further comprising a potting material which secures said wafer section to said wafer section holder.
31. The apparatus of claim 30 further comprising a sacrificial layer over a surface of said wafer holder, wherein said sacrificial layer is interposed between said wafer holder and said alignment fixture.
32. The apparatus of claim 27 further comprising an adhesive release layer interposed between said wafer section holder and said alignment fixture.

33. An apparatus used during de-processing of a semiconductor wafer section comprising:

a semiconductor wafer section holder having an opening therein and a substantially flat surface;

a semiconductor wafer section to be de-processed having a substantially flat surface, wherein said wafer section is received in said opening in said holder and said flat surface of said holder and said flat surface of said wafer section are substantially coplanar; and

an adhesive which attaches said holder with said wafer section.

34. The apparatus of claim 33 wherein said holder further comprises at least one sacrificial layer of material over a front side of said holder.

35. The apparatus of claim 34 wherein said semiconductor wafer section further comprises at least one layer to be removed, wherein said at least one wafer section layer to be removed and said at least one sacrificial layer of material over said front of said holder comprise a dielectric material.

36. The apparatus of claim 33 further comprising:

at least one dielectric layer and at least one metal layer over a surface of said holder; and

at least one dielectric layer and at least one metal layer over a surface of said wafer section.

## REMARKS

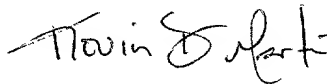
By this amendment claims 1-20 have been canceled, the specification and claims 22 and 26 have been amended, and claims 27-36 have been added.

It should be noted that the specification as filed has been amended from the parent specification as filed. These changes number the paragraphs in accordance with revised rule 37 CFR §1.121, add related US application data on page 1 after the title, and further add a comma at paragraph 4 line 6 after "lapping film" in accordance with a change approved by the Examiner in the parent case.

Attached hereto as Appendix I, "Version With Markings To Show Changes Made," is a marked-up version of the changes made to the specification and claims by the present amendment.

Consideration of the application as amended is respectfully requested. If the Examiner believes a conference will expedite prosecution of the case, the Examiner is cordially invited to call the undersigned.

Respectfully submitted,



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## APPENDIX I VERSION WITH MARKINGS TO SHOW CHANGES MADE

### In the specification

Paragraph 20 beginning on page 4 has been amended as follows:

A potting jig 24 such as that depicted in FIG. 2 may aid in aligning and securing the die 14 to the holder 10. The potting jig 24 comprises a generally circular or square block 26, for example manufactured from steel, having a recess 28 therein, a shaft 30, and a hole 32 in the block 26 for receiving the shaft 30. The shaft has a ring [32] 33 affixed thereto, and a spring 34 is placed in recess 28 between the block 26 and the ring [32] 33 such that the spring 34 urges the shaft 30 toward the die 14. During use, the die 14 and holder 10 are placed on the optical flat 20 then the jig 24 is placed on the holder 10. As the holder depicted is held in position by gravity it must be of sufficient mass to maintain the position of the holder against the optical flat. The shaft 30 applies downward pressure to the die 14 and holds the die in position. The die can be released from contact with the shaft by lifting on the end of the shaft which protrudes from the block as depicted in FIG. 2. The die can be manually positioned through an access hole in the side of the mount so that the die is generally aligned within the opening in the holder. A syringe can be used to dispense the adhesive 22 (or potting material) around the perimeter of the die to fill the space between the die 14 and the holder 10.

### In the Claims

Claims 22 and 26 have been amended as follows.

22. (amended) The apparatus of claim 21 in combination with a semiconductor device having a generally planar surface, wherein said holder further comprises a generally flat surface and wherein said planar surface of said semiconductor device and said generally flat surface of said holder contact said generally planar surface of said alignment fixture.

26. (amended) The apparatus of claim 22 further comprising a potting jig comprising:

a block contacting said holder and having a hole and a recess therein;

a shaft received by said hole in said block; and

a spring received by said recess [which urges] adapted to urge said shaft toward said semiconductor device and to hold[s] said semiconductor device in alignment against said alignment fixture.

Claims 27-32 have been newly added.

27. An apparatus for de-processing a semiconductor wafer section, comprising:

a wafer section holder having a substantially flat surface and an opening therein, said opening adapted to receive a semiconductor device;

an alignment fixture having a substantially flat surface adapted to align said substantially flat surface of said holder with a substantially flat surface of a semiconductor wafer section; and

a potting jig adapted to urge said substantially flat surface of said holder and a substantially flat surface of a semiconductor wafer section against said substantially flat surface of said alignment fixture.

28. The apparatus of claim 27 wherein said potting jig further comprises:

a block having a hole therethrough;

a shaft having a first end and a second end, said shaft received by said hole in said block;

and

a spring adapted to urge said first end of said shaft away from said block and toward said alignment fixture.

29. The apparatus of claim 28 further comprising a ring affixed to said shaft and contacting said spring, wherein said spring is adapted to urge said ring and said first end of said shaft away from said block and toward said alignment fixture.

30. The apparatus of claim 29 in combination with a semiconductor wafer section, further comprising a potting material which secures said wafer section to said wafer section holder.

31. The apparatus of claim 30 further comprising a sacrificial layer over a surface of said wafer holder, wherein said sacrificial layer is interposed between said wafer holder and said alignment fixture.

32. The apparatus of claim 27 further comprising an adhesive release layer interposed between said wafer section holder and said alignment fixture.

33. An apparatus used during de-processing of a semiconductor wafer section comprising:

a semiconductor wafer section holder having an opening therein and a substantially flat surface;

a semiconductor wafer section to be de-processed having a substantially flat surface, wherein said wafer section is received in said opening in said holder and said flat surface of said holder and said flat surface of said wafer section are substantially coplanar; and

an adhesive which attaches said holder with said wafer section.

34. The apparatus of claim 33 wherein said holder further comprises at least one sacrificial layer of material over a front side of said holder.

35. The apparatus of claim 34 wherein said semiconductor wafer section further comprises at least one layer to be removed, wherein said at least one wafer section layer to be removed and said at least one sacrificial layer of material over said front of said holder comprise a dielectric material.

36. The apparatus of claim 33 further comprising:

at least one dielectric layer and at least one metal layer over a surface of said holder; and

at least one dielectric layer and at least one metal layer over a surface of said wafer section.



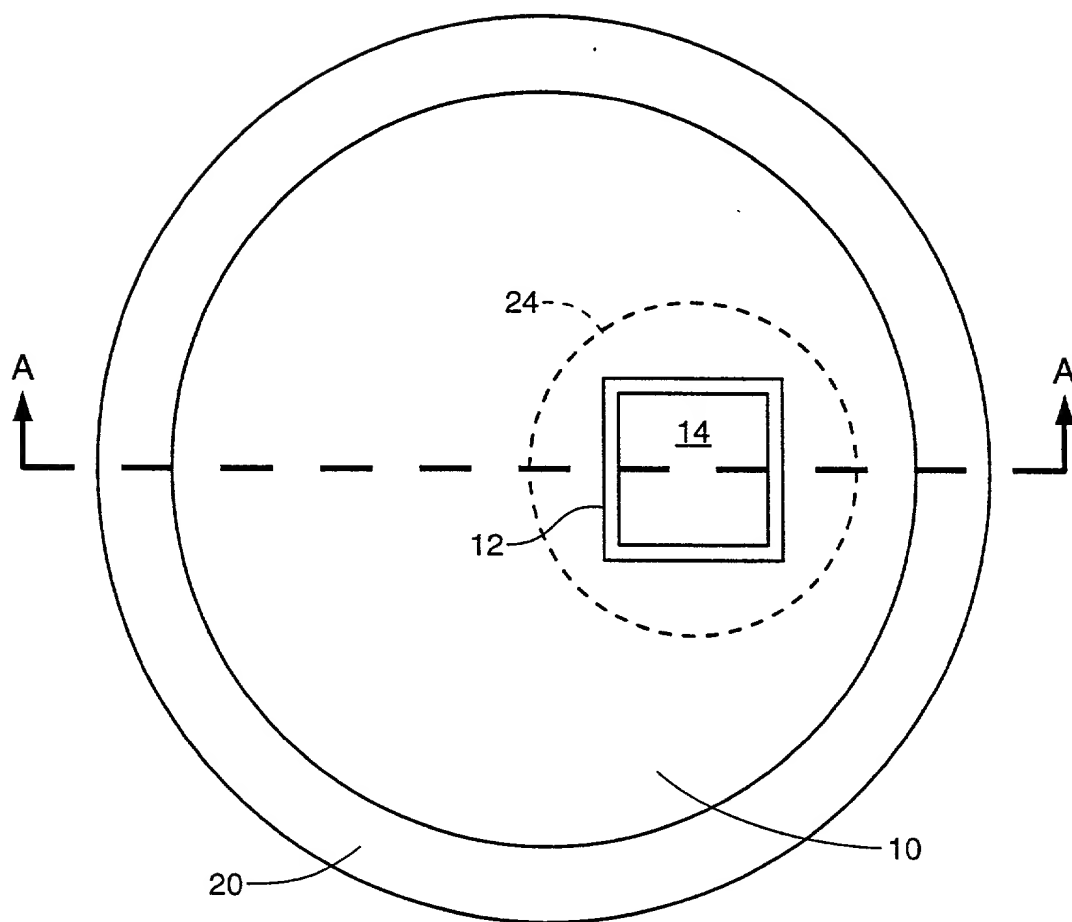


FIG. 1

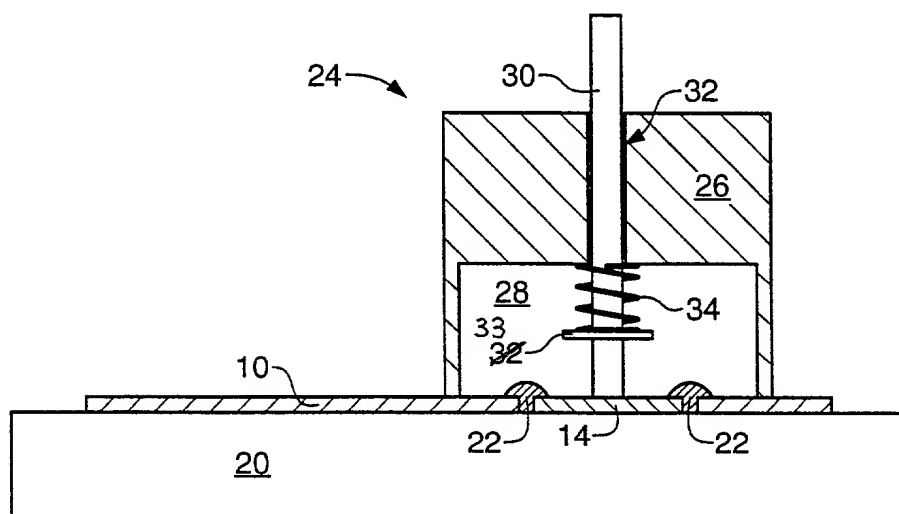


FIG. 2

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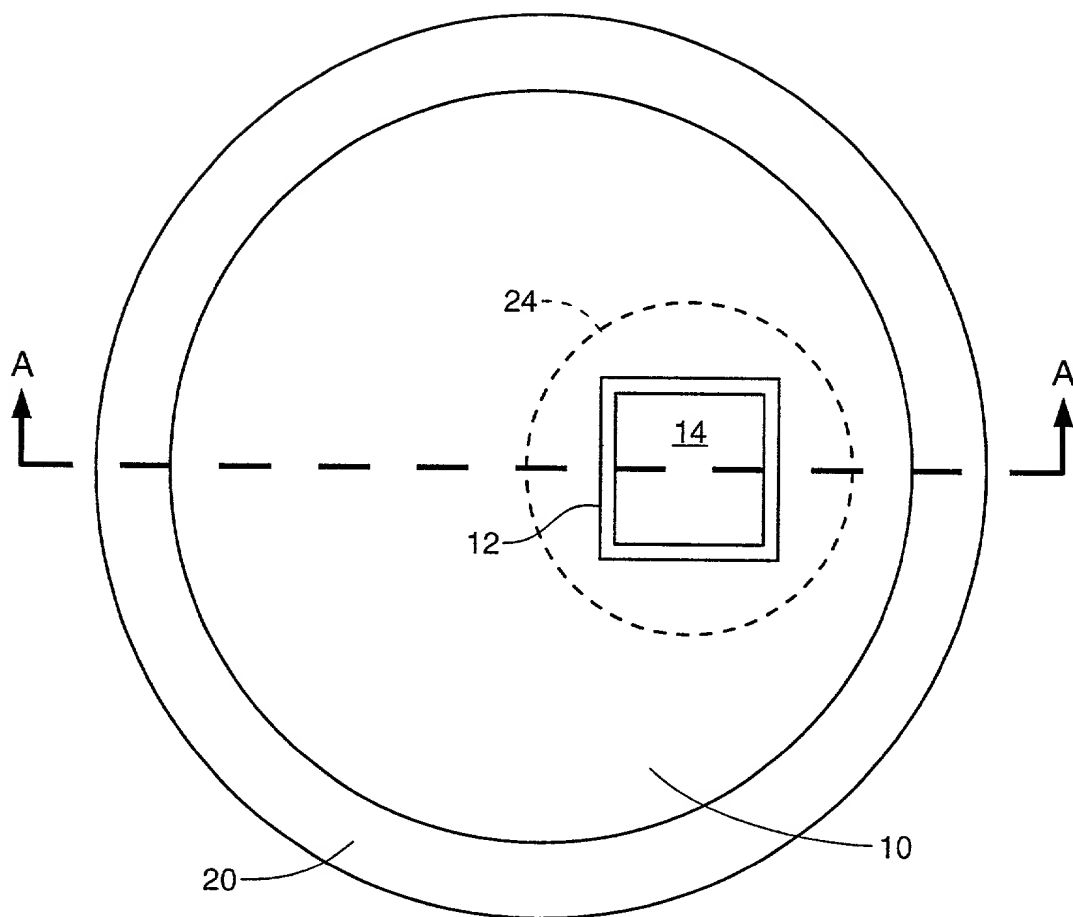


FIG. 1

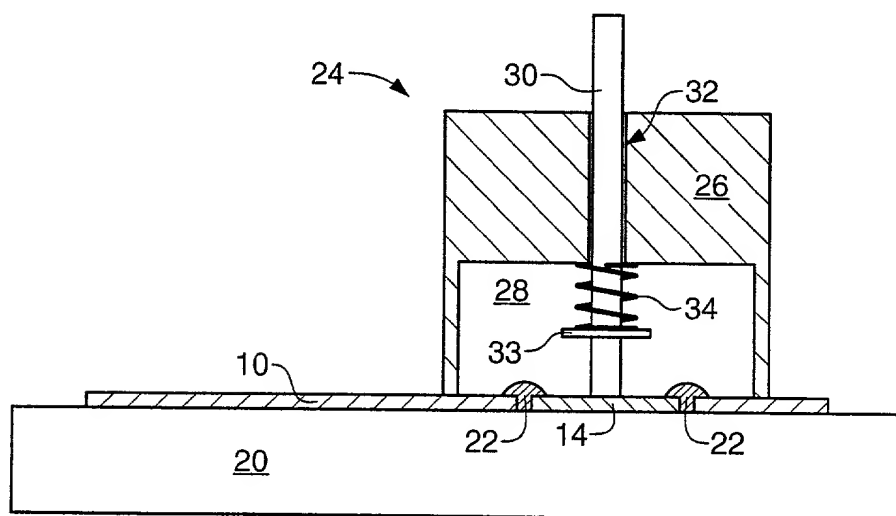


FIG. 2